Safe Seas 2006
Operations Overview

06 August – 11 August

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Safe Seas 2006 Operations Timeline: Wednesday, 09 August

	VIP & MEDIA		Shore Based Ops			Surface Operations					Air Operations				
	CGC Aspen	P/B Steelhead	SCAT TEAMS	GRS Chrissy Field	Marine Mammal Ops	OSRV Pacific Reponder	R/V Shearwater	R/V Mussel Point	ALCO 85	NRT-6	C-130 Hercules	Partenavia	Lake Amphibian	Charter Aircraft	HH-65 Dolphin
7:00						Underway 0600									
7:30			Safety MTG: CMD Post		Safety MTG: CMP Post	Underway	Underway	Underway	Underway						
8:00	Arrive Fort Mason Pier 2	Arrive Fort Mason Pier 2				Underway	Transit	Transit	Transit	Deploy NRT					
8:30	Underway	Underway	Transit to Assigned Beaches		Transit to Assigned Beaches	Transit		Drift Card #1 Release?	AUV ops #1						
9:00	Transit	Transit		Deploy Resources			Oceanographic Ops						Wildlife surveillance		Aerial Observation Traning
9:30				Transit		Skimming Ops			AUV ops #2	Data Collection					
10:00															
10:30	Operations Viewing	Operations Viewing	Shoreline assessment and e-Data Transmision	Shore Prep	Wildlife Collection Field Protocols			Oceonographic Operations							POPEIE Buoy Deployment ?
10:45									AUV Recover & Disp. Setup						
11:00						Dye Release #1									
11:15						Secure Skm. Dye prep	Dispersant 'A' vessel		Dispersant 'B' vessel		Dispersant Application Operation		Dispersant Application Operation	Dispersant Application Operation	
11:30						Dye Release #2									
11:45						Drift Card #2			Transit to Ops 3						
12:00	Return Transit and Lunch	Return Transit					SMART Monitoring					SMART Videograhpy			
12:15															
12:30				GRS Deployment	Transit to Sausilito	Command and Control			AUV ops #3					Aerial Observation Traning and Aspen Overflight	
12:45															
13:00															
13:15															
13:30		Arrive Pier 32			Wildlife Lab Protocols										
13:45	Arrive Pier 32									Data Processing					
14:00	Secure	Secure													
14:30				Recovery?		Transit			POPEIE Buoy Recovery (?)						
15:00			Trasit to CP					Transit	Transit						
15:30				Transit	Transit to CP	Transit									
16:00			Debrief & Secure				Transit	Secure	Secure	Data Delivered to CP					
16:30				Secure	Debrif & Secure					Secure					
17:00						Transit	Secure								
17:30						Transit									
18:00						Secure									
18:30	NATIONAL MARINE SANCTUARY FOUNDATION RECEPTION, Presido														
19:00															
19:30															
20:00															

Operations Timeline, 09 August

Operations Map

R/V Mussel Point
Bodega Bay Marine Lab
•CenCOOS Oceanographic Ops
•Drift Card Release #1

Air OPS:
•*USCG HH65 Dolphin:* Surveys & POPEIE Buoy release
•*USAF C-130*: Dispersant Ops
•*NOAA Lake Amphibian*: Surveys & Cmd & Control
•*Cal DFG Partenavia*: SMART

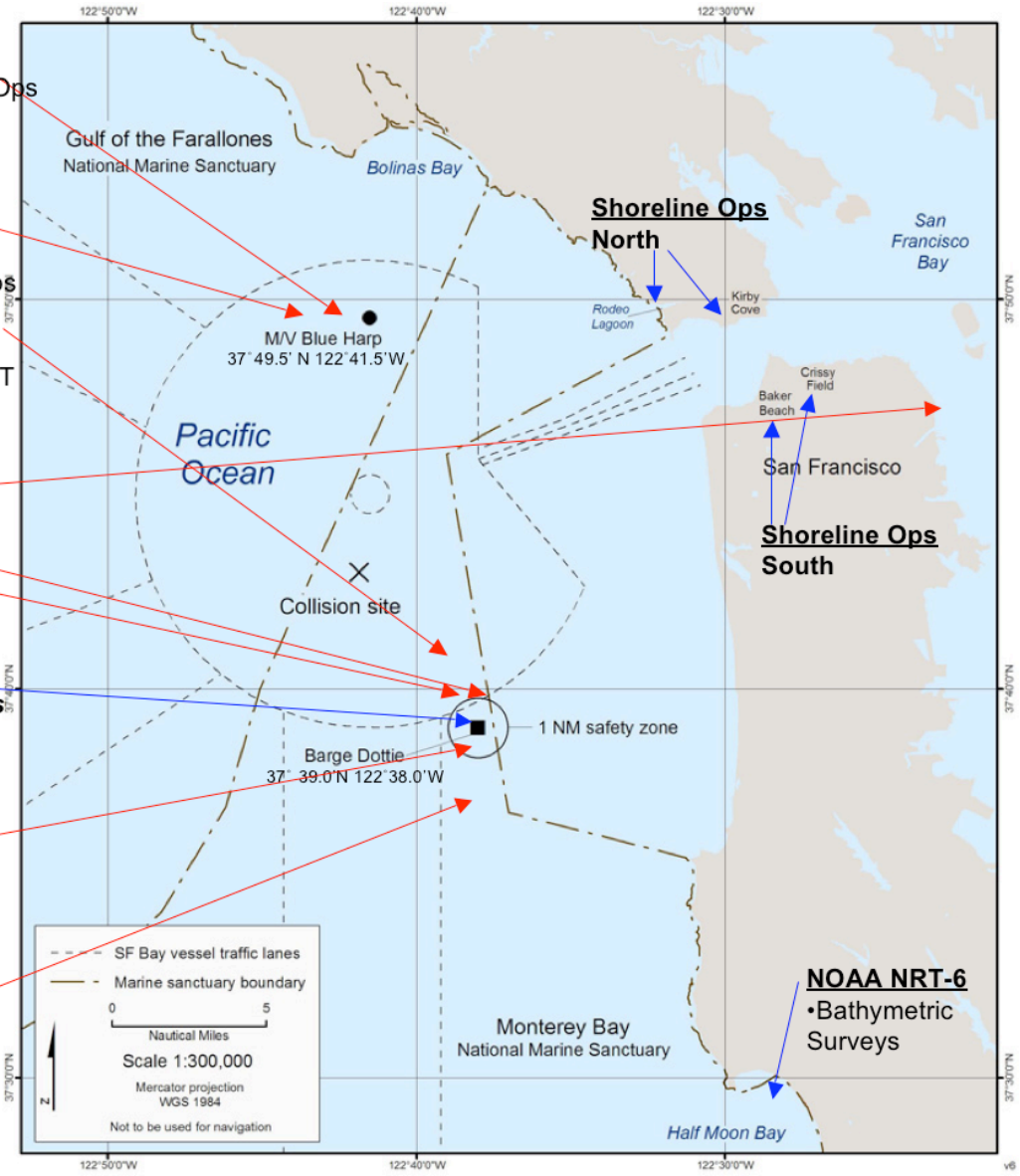
CGC Aspen
US Coast Guard D-11
•SORS (8/7 Tech. Demo)
•VIP Escort

P/B Steelhead
California DFG
•Media Escort

R/V Shearwater
NOAA Nat'l Marine Sanct's
•QREB
•SMART
•Oceanographic Ops

W/C Pacific Responder
MSRC
•Skimming Ops
•SMART Release
•Drift Card Release #2
•Forward CMD Post

P/B ALCO 85
Alameda County Sheriff
•AUV Ops
•POPEIE Buoy Recovery



CGC *Aspen*

Objectives

E.i.--Deploy USCG SORS and MSRC *Pacific Responder* skimming assets

E.iii.--Conduct all field operations in accordance with the Site Safety Plan.

E.iv.-- Conduct all field operations in accordance with restrictions relating to marine mammals, endangered species, and cultural resources.

Figure 1. USCGC Aspen inbound under the GG Bridge

Overview

SORS

CGC *Aspen* will conduct a Spilled Oil Response System (SORS) demonstration on Monday, June 7th as part of the Safe Seas 2006 technology demonstration. Limited media and drill participants will be the primary audience.

Figure 2. A CG Buoy Tender deploys SORS

VIP Escort

On 09 August, CG *Aspen* will host up to 50 VIPs for an operational tour of field events. The timing of many of the field activities will be coincident with the arrival of *Aspen* and her guests.

P/B *Steelhead*

Objective(s)

E.iii.--Conduct all field operations in accordance with the Site Safety Plan.

E.iv. Conduct all field operations in accordance with restrictions relating to marine mammals, endangered species, and cultural resources.

Figure 3 P/B *Steelhead* will host media personnel while escorting the CGC *Aspen*.

Overview

Media Escort

The California Department of Fish and Game Patrol Boat *Steelhead* will host up to 20 media personnel in order to enable viewing and reporting of field operations.

Shoreline Assessment Teams

Objective(s)

D.iv.--Plan and conduct Shoreline Cleanup Assessments that incorporate response, marine debris, and initial natural resource injury assessment.

E.iii.--Conduct all field operations in accordance with the Site Safety Plan.

E.iv. Conduct all field operations in accordance with restrictions relating to marine mammals, endangered species, and cultural resources.

E.vi.--Deploy response software and technologies to collect operationally relevant information on water surface, water column, and shoreline oiling conditions.

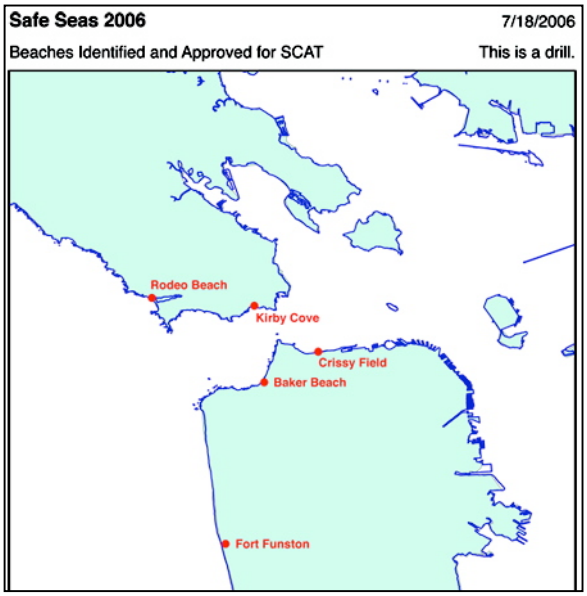


Figure 4 Shoreline Assessment Locations

F.iv.--Conduct fieldwork to collect ephemeral data including SCAT, water samples, wildlife, shellfish, and economic information.

Overview

Shoreline Cleanup and Assessment

Activities will involve four teams and will cover four or five beaches in the potentially impacted area (see above map). Pre-deployed non-toxic, biodegradable wooden drift cards will simulate a portion of the oil from the collision of the (simulated) *Blue Harp* and *Dottie*. For these surveys, NOAA HAZMAT and California OSPR will collaboratively test and implement their new electronic data collection field tools. Field data captured via this method will be transmitted back to the command post using remote internet connection via the cellular network or via satellite data transmission. The resulting maps showing oil distribution will be displayed in the command post.

Marine Debris data collection and training

The NOAA Marine Debris program is sponsoring a component of the drill that will encourage Shoreline Assessment Teams to consider how to record and report the presence of oiled marine debris. Accordingly, a percentage of the drift cards released to simulate oil will be marked to simulate the presence of oiled marine debris. These specially marked cards will be interspersed with the "oil" drift cards and will prompt assessment teams to collect spatial data specific to marine debris.

Oiled Wild Life Response

Objective(s)

E.iii.--Conduct all field operations in accordance with the Site Safety Plan.

E.iv. Conduct all field operations in accordance with restrictions relating to marine mammals, endangered species, and cultural resources.

E.v.--Field test inter-agency wildlife care activities including "Marine Mammal Oil Spill Response Guidelines" and avian flu protocols.

F.iv.--Conduct fieldwork to collect ephemeral data including SCAT, water samples, wildlife, shellfish, and economic information.

Overview

Marine Mammal Stranding Training

Personnel from the National Marine Fisheries Service will accompany Shoreline Assessment teams in order to test newly developed Oiled Marine Mammal Protocols and to learn SCAT methods in order to integrate marine mammal observations into the process.

Zoonotic Disease Response Technique Training

Consideration will be given to oiled bird and marine mammal protocols in light of new Avian Influenza and Emerging Infectious Disease concerns due to their ability to transmit from animals to humans. This will be in the form of awareness training.

Geographic Response Area Deployment

Objective(s)

E.ii.--Deploy a sensitive area protection strategy.

E.iii.--Conduct all field operations in accordance with the Site Safety Plan.

E.iv.--Conduct all field operations in accordance with restrictions relating to marine mammals, endangered species, and cultural resources.

Figure 8. An example of a response strategy

Overview

Crissy Field Boom Deployment

An oil spill response strategy will be deployed at a pre-designated Geographic Response Area (GRA) at Crissy Field in accordance with the San Francisco Bay Area Contingency Plan. The Marine Spill Response Corporation (MSRC) and the California Office of Spill Prevention Response (OSPR) will work collaboratively to fulfill the requirements of the Preparedness for Response Exercise Program (PREP) deploying in excess of 1000 feet of oil containment boom by three small boats.

Figure 9. Crissy Field near the Presidio in San Francisco

Access for the deployment will be from the water using small boats supplied by MSRC. This will be the last operation viewed by the CGC *Aspen*

OSRV *Pacific Responder*

Objective(s)

E.i.--Deploy USCG SORs and MSRC *Pacific Responder* skimming assets

E.iii.--Conduct all field operations in accordance with the Site Safety Plan.

E.iv.--Conduct all field operations in accordance with restrictions relating to marine mammals, endangered species, and cultural resources.

Figure 10 Marine Spill Response Corporation 225ft Oil Spill Response Vessel, *Pacific Responder* will serve as the forward command post.

E.viii--Deploy dispersant application assets and follow-on Special Monitoring of Applied Response Technologies (SMART) in order to test the California Dispersant Plan.

Overview

Skimming

The Marine Spill Response Corporation (MSRC) will employ the Oil Spill Response Vessel (OSRV) *Pacific Responder* in order to practice and demonstrate its ability to conduct open water oil skimming in the vicinity of the (simulated) Barge *Dottie*. The simulated product will be an Intermediate Fuel Oil #180, a medium weight refined product. A 26ft Munson small boat will be deployed to provide enhanced skimming capability and assist with the SMART exercise (below).

Forward Command Post

Pacific Responder will also be used as the on scene forward Command Post. In this capacity, her ability to communicate with both air and surface assets will be used to coordinate operations and safety. A NOAA National Weather Service Incident Meteorologist, a US Coast Guard operations manager, and a NOAA exercise controller will be aboard *Pacific Responder* to orchestrate field operations.

Figure 11 Simulating dispersed oil, dye will be tracked and monitored during the SMART exercise.

SMART Exercise

A fluoroscein dye and drifter transport experiment will simulate dispersing oil as a response tactic. The plume will be highly visible to on scene observers, and will be part of the drill play including deployment of the USCG Strike Team Special Monitoring of Alternative Response Technologies (SMART) team and Louisiana State University Chemical Response Team, off of the NOAA R/V Shearwater.

R/V Shearwater

Objective(s)

D.i.--The Situation Unit will develop products that comprise a Common Operational Picture for environmental conditions using real time and near real time environmental observations

E.iii.--Conduct all field operations in accordance with the Site Safety Plan.

E.iv. Conduct all field operations in accordance with restrictions relating to marine mammals, endangered species, and cultural resources.

E.vi.--Deploy response software and technologies to collect operationally relevant information on water surface, water column, and shoreline oiling conditions.

E.vii.--Deploy observation technologies for water surface, water column, shoreline, and the seafloor to collect operationally relevant data in real time and near real time.

E.viii-- Deploy dispersant application assets and follow-on Special Monitoring of Applied Response Technologies (SMART) in order to test the California Dispersant Plan.

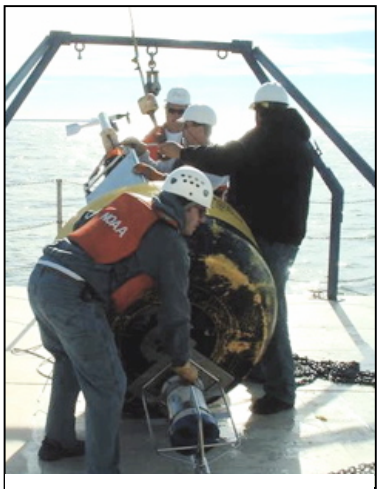


Figure 13. QREB Deployment

Overview

QREB: Quick Response Environmental Buoy

The QREB Buoy will be used to obtain real-time oceanographic environmental data to be used for safe navigation that will be made available to modelers and decision makers in the command post. The buoy will be deployed on Tuesday, August 8th at the location of the simulated Barge *Dottie*.

SMART: Special Monitoring of Applied Response Technologies

SMART monitoring and training will be conducted from the NOAA R/V *Shearwater*. This will occur in conjunction with the application of simulated dispersant from the Air Force C-130. SMART monitoring will compare existing protocols with those being developed through the efforts of Cal OSPR the US Coast Guard Pacific Strike Team, and NOAA HAZMAT.

Figure 14. SMART Monitoring

Oceanographic Operations

R/V *Shearwater* will collect oceanographic observations using a Conductivity Temperature Depth (CTD) instrument. CTD data will be made available to the Environmental Unit in the Command Post to aid in dispersant application decision making.

Weather

R/V *Shearwater* will collect meteorological observations using an RM Young Meteorological package. Observations will be forwarded to the Incident Meteorologist in order to increase forecast accuracy.

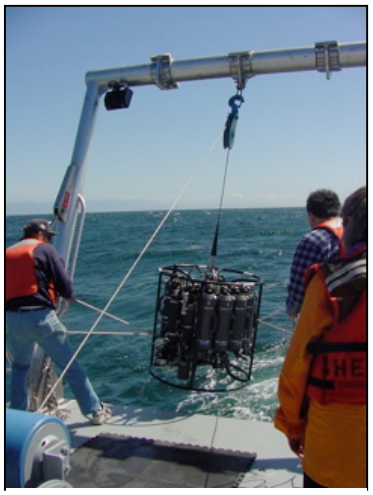


Figure 15. Oceanographic operations aboard R/V *Shearwater*

BODEGA BAY MARINE LAB R/V *Mussel Point*

Objective(s)

D.i.--The Situation Unit will develop products that comprise a Common Operational Picture for environmental conditions using real time and near real time environmental observations

E.iii.--Conduct all field operations in accordance with the Site Safety Plan.

E.iv. Conduct all field operations in accordance with restrictions relating to marine mammals, endangered species, and cultural resources.

E.vi.--Deploy response software and technologies to collect operationally relevant information on water surface, water column, and shoreline oiling conditions.

E.vii.--Deploy observation technologies for water surface, water column, shoreline, and the seafloor to collect operationally relevant data in real time and near real time.

Figure 16. The Bodega Marine Lab R/V *Mussel Point*

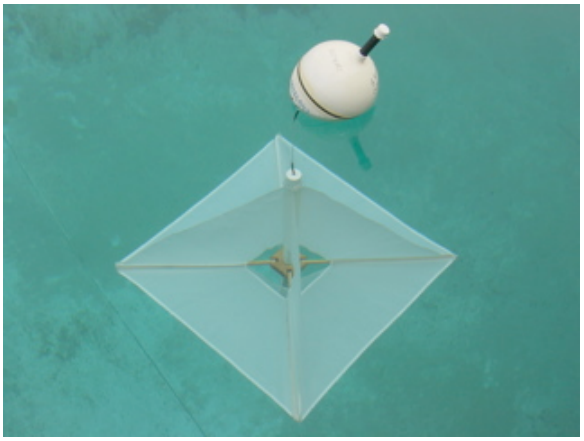


Figure 17. Sea surface drifter tracks currents

Overview

Oceanographic Operations

R/V *Mussel Point* will conduct oceanographic operations in support of the Integrated Ocean Observation System (IOOS). These operations will be used to validate and verify shore-based HF RADAR (CODAR) current observations. Surface current satellite drifters will be deployed to verify surface current measurements. A satellite float (shown below) communicates the location to the Internet in real time as the apparatus follows surface currents. (Care should be taken by all participating vessels to avoid running over the small white ball that is the only part of the drifter that shows on the surface.) A minimum of 10 satellite drifters will be deployed near or north of the collision site.

Figure 18. Profiling CTD: conductivity/ temperature/fluorometer

Drift Cards

Approximately 1000 non-toxic, biodegradable wooden drift cards will be released to simulate oil released from the (simulated) M/V *Blue Harp.* Drift cards will be used to initiate numerical oil trajectory models as well as be used for aerial observation training.

Figure 19. Drift card Deployment in Hawaii

P/B *Susan M* (ALCO 85)

Objective(s)

C.i.--Demonstrate the ability of the Damage & Salvage Control Teams provided by the RP to plan source control, conduct an initial assessment of the damage, and develop a Salvage Plan.

E.iii.--Conduct all field operations in accordance with the Site Safety Plan.

E.iv.--Conduct all field operations in accordance with restrictions relating to marine mammals, endangered species, and cultural resources.

Figure 20. The Alameda County Sheriff's Dept P/B ALCO 85

E.vii.--Deploy observation technologies for water surface, water column, shoreline, and the seafloor to collect operationally relevant data in real time and near real time.

Overview

AUV: Autonomous Underwater Vehicle

Using an autonomous underwater vehicle, ocean bottom imagery will be obtained in the vicinity of actual submerged objects that will be used to simulate the scenario's sunken barge *Dottie.* This imagery will be processed and relayed back to the command post for display and to be used in salvage related decision-making and planning.

Navigation Response Team (NRT)

Objectives

D.-- Demonstrate the ability to conduct initial environmental assessments and forecasts, and develop the appropriate plans including: shoreline protection; wildlife protection; cultural resource protection; dispersant use; and harbor of refuge.

E.iii.--Conduct all field operations in accordance with the Site Safety Plan.

E.iv. Conduct all field operations in accordance with restrictions relating to marine mammals, endangered species, and cultural resources.

Figure 21. Half Moon Bay and Pillar Point, CA

E.vii.--Deploy observation technologies for water surface, water column, shoreline, and the seafloor to collect operationally relevant data in real time and near real time.

Overview

Half Moon Bay Hydrographic Harbor of Refuge Survey

NOAA Navigation Response Team 6 will deploy at Half Moon Bay to acquire bathymetric data using an advanced multi-beam SONAR that will be processed and sent to the command post to assist decision makers during the Harbor of Refuge discussions.

USCG HH-65 Dolphin

Objectives

E.iii.--Conduct all field operations in accordance with the Site Safety Plan.

E.iv. Conduct all field operations in accordance with restrictions relating to marine mammals, endangered species, and cultural resources.

E.vii.--Deploy observation technologies for water surface, water column, shoreline, and the seafloor to collect operationally relevant data in real time and near real time.

Figure 22. A USCGC HH-65 Dolphin will be the first Aircraft on Scene at Safe Seas 2006.

F.iv.--Conduct fieldwork to collect ephemeral data including SCAT, water samples, wildlife, shellfish, and economic information.

Overview

Aerial Observation Training

NOAA HAZMAT personnel will provide oil spill observation training to US Coast Guard Aviators using deployed drift cards and real environmental conditions present during the exercise.

Aerial Observations

The observations observed in the training will be properly recorded and mapped in order to provide over-flight information to command post personnel and to help initiate oil spill trajectory models.

Objectives

E.iii.--Conduct all field operations in accordance with the Site Safety Plan.

E.iv. Conduct all field operations in accordance with restrictions relating to marine mammals,

endangered species, and cultural resources.

E.viii-- Deploy dispersant application assets and follow-on Special Monitoring of Applied Response Technologies (SMART) in order to test the California Dispersant Plan.

Figure 21 Figure 1 The NOAA Lake Amphibian Aircraft will fly as the Task Force Command plane and provide safety coordination from the highest altitude of the evolution.

Figure2 2 The California State Air Attack Aircraft provides spray spotting for fire fighting and dispersant application.

Dispersant Application

The U.S. Air Force Reserve will deploy from Youngstown, Ohio, in order to simulate the application of oil dispersants that were approved by the Regional Response Team during the Table Top portion of the exercise in July.

This evolution will also involve the participation of the NOAA Lake Amphibian aircraft as well as an California Department of Forestry and Fire Prevention Air Attack fire response aircraft. The C-130 and Air Attack aircraft will fly in opposing racetrack formation applying water over the drift card/fluorocine dye "slick". The C-130 will do eight passes at 100 feet altitude applying approximately 1000 gallons of water. The NOAA aircraft will serve as a safety plane, and will include an expert tactical commander to assist in this capacity.

Figure 23 The U.S. Air Force Reserve's 910th Air Wing will provide a Spray equipped C-130 to simulate dispersant application from an altitude of 100 feet.

NOAA Lake Amphibian

Objectives

E.iii.--Conduct all field operations in accordance with the Site Safety Plan.

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E.vii.--Deploy observation technologies for water surface, water column, shoreline, and the seafloor to collect operationally relevant data in real time and near real time.

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F.iv.-- Conduct fieldwork to collect ephemeral data including SCAT, water samples, wildlife, shellfish, and economic information.

Overview

Dispersant Application Safety Plane

The NOAA Lake Amphibian will be conducting two missions during the simulated dispersant application. In the first mission the plane will fly over the northern and southern operations areas in order to map the spatial extent of trust resources. This survey will then be used to facilitate the second mission, which is to serve as the Safety Plane during the application of simulated dispersant.

Wildlife Survey

In advance of the C-130 led aerial dispersant application, NOAA, assisted by trained wildlife observers will conduct a wildlife survey in order to ensure the absence of trust resources that might be affected during the exercise. The results of this survey will be fed into the operations cycle.

Cal DFG Partenavia

Objectives

E.iii.--Conduct all field operations in accordance with the Site Safety Plan.

E.iv. Conduct all field operations in accordance with restrictions relating to marine mammals, endangered species, and cultural resources.

E.vii.—Conduct geo-referenced aerial photography of #2 dye plume in real time for as long as the plume is visible or conditions allow in order to test the California Dispersed Oil Monitoring Plan.

Figure 4 Figure 4 The California Department of Fish and Game Partenavia Aircraft will observe

Overview

After a dispersant application, decision makers need to know whether or not it was effective and trustee agencies need to know the amount of oil forced into the water column for Natural Damage Assessment. Special Monitoring of Applied Response Technologies (SMART) is a systems of observation protocols intended to answer these questions.

SMART monitoring will be led from scientists aboard the California Fish and Game Partenavia Aircraft. As they conduct aerial geo-referenced imagery, they will direct the NOAA Research Vessel Shearwater (see above mission description) to the location of the dispersed oil plume (dye in the case of this exercise). Scientists from Louisana State University and the U.S. Coast Guard Pacific Strike Team who will be aboard Shearwater will use special fluorometers to measure amount and distribution of particles in the water column.